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Sarcoglycans and mucin in epithelial tissues of digestive and respiratory tracts: an immunofluorescence study

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Sarcoglycans are transmembrane glycoproteins which play a key role in maintaining sarcolemma stabilization during muscle contraction. Several studies have demonstrated that this complex is not muscle specific and that it is also expressed in epithelial tissues as gingival, breast and prostatic epithelia. In the present study we investigated sarcoglycans expression in the epithelia of digestive and respiratory tracts. We performed immunofluorescence reactions using antibody against a-, b-, g-, d-, e- and z-sarcoglycans and against mucin 4 and 16. Mucins are a superfamily of proteins which serve to protect the underlying epithelia against a wide range of injuries (bacteria, virus, parasites, toxins, pH). This protection leads to coordinate cell proliferation, differentiation and apoptosis among other cellular responses; in fact, mucins are promising biomarkers and therapeutic targets in cancer and inflammatory diseases. Our results show the expression of sarcoglycans in the basal, lateral, and apical epithelial cell's surface; moreover, sarcoglycans show to colocalize with mucins in the cell's apical surface of bronchi and bronchioles, stomach and intestine but no apical localization has been detected in the esophageal epithelium. These results support the role of sarcoglycans in cell-cell and cell-matrix interaction. Moreover, the colocalization between sarcoglycans and mucins at apical level of epithelia which have high mucosecretory activity suggest that sarcoglycans could interact with mucus, maybe involving in maintainig omeostasis of gastro enteric epithelia. It will be necessary to demonstrate the hypothetical correlation between sarcoglycans and the maintaining epithelial homeostasis.

References

[1] Arco et al. (2012) Sarcoglycans in the normal and pathological breast tissue of humans: an immunohistochemical and molecular study. Cells Tissues Organs; 195(6):550-62. doi: 10.1159/000329508.
[2] Constantinou et al. (2011) Transmembrane mucins as novel therapeutic targets. Expert Rev Endocrinol Metab; 6(6):835-848.

Keywords
Mucins; sarcoglycans; epithelia; immunofluorescence.